Identification, typology and type specific reference conditions of river water bodies in the Hellenic part of the Strymonas river basin, as a transboundary case study

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Aims of the study

- To identify the river water bodies in the basin
- To select and apply the methodology of typology on the water bodies
- To examine if there are any type specific reference conditions in the basin
  - Critical steps for an accurate investigative monitoring according to WFD guidelines.
  - The study was held during the project of "Surveillance monitoring in the Hellenic part of Strymonas river basin" funded by the Region of Central Macedonia
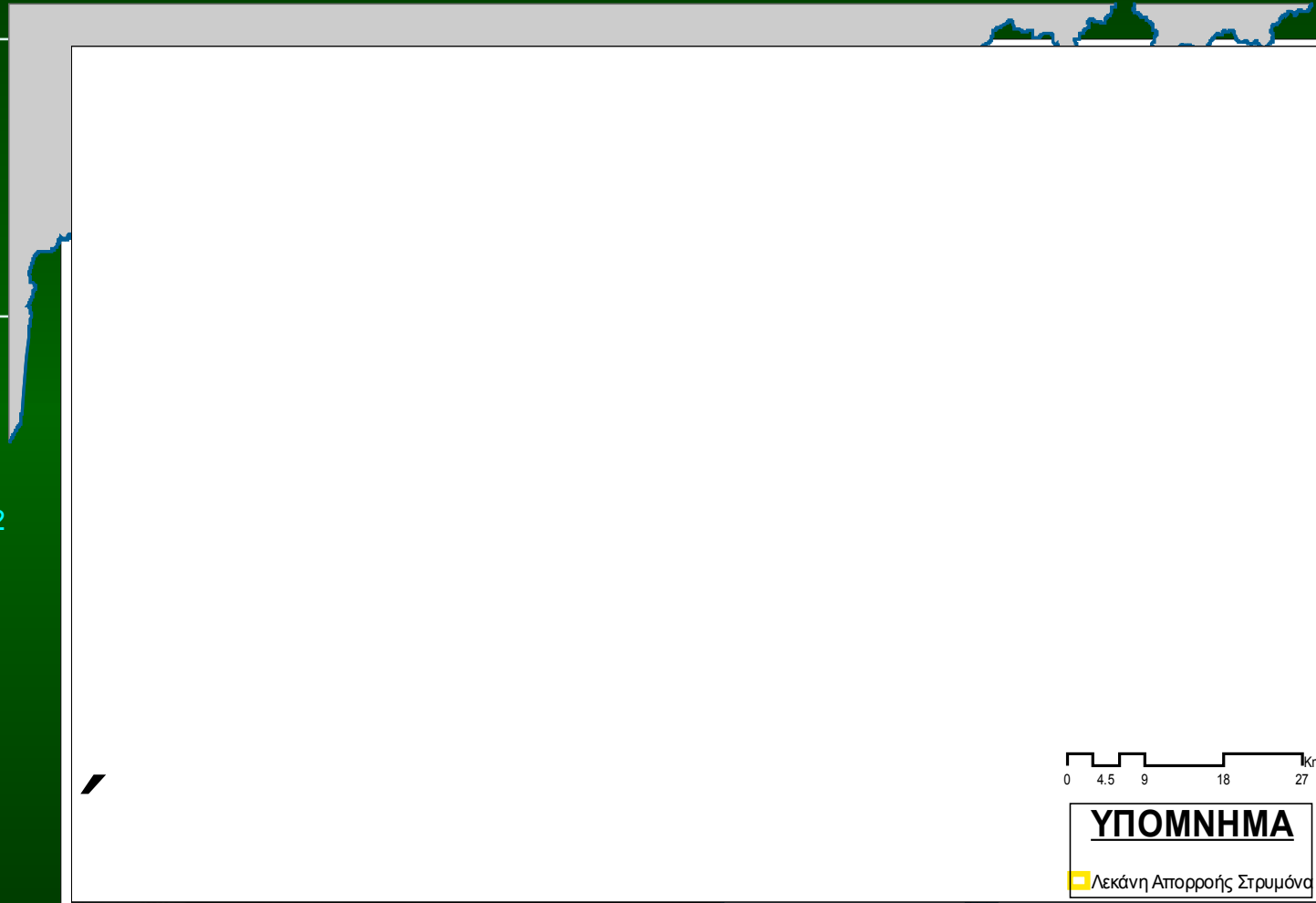
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Study Area – Hellenic part of Strymonas River Basin

Total Basin

- Bulgaria (51.3%)

- **Greece (34,6%)**

- F.Y.R.O.M (14,1%).

Greek part of Stymonas River:

- Area of 6.000 km²
- River Length 118 km
- Includes 4 Natura 2000 sites

0	4.5	9	18	27 Km

ΥΠΟΜΝΗΜΑ

☐ Λεκάνη Απορροής Στρυμόνα

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River bodies identification

- River water bodies in the basin were identified and recognized <u>as coherent units</u> (according to GD No.2)

- Morphological elements and river confluences were examined thoroughly so as to achieve the best division grade among the river water bodies.

- Apart from main river, three side rivers with constant flow were selected for recognition

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Typology System

- Typology <u>System B</u> was selected to treat the mosaic differences of the Hellenic nature

- Three obligatory factors (altitude, cathment size, geology) and one optional (slope)

- All factors were categorized in three classes either after a statistical analysis

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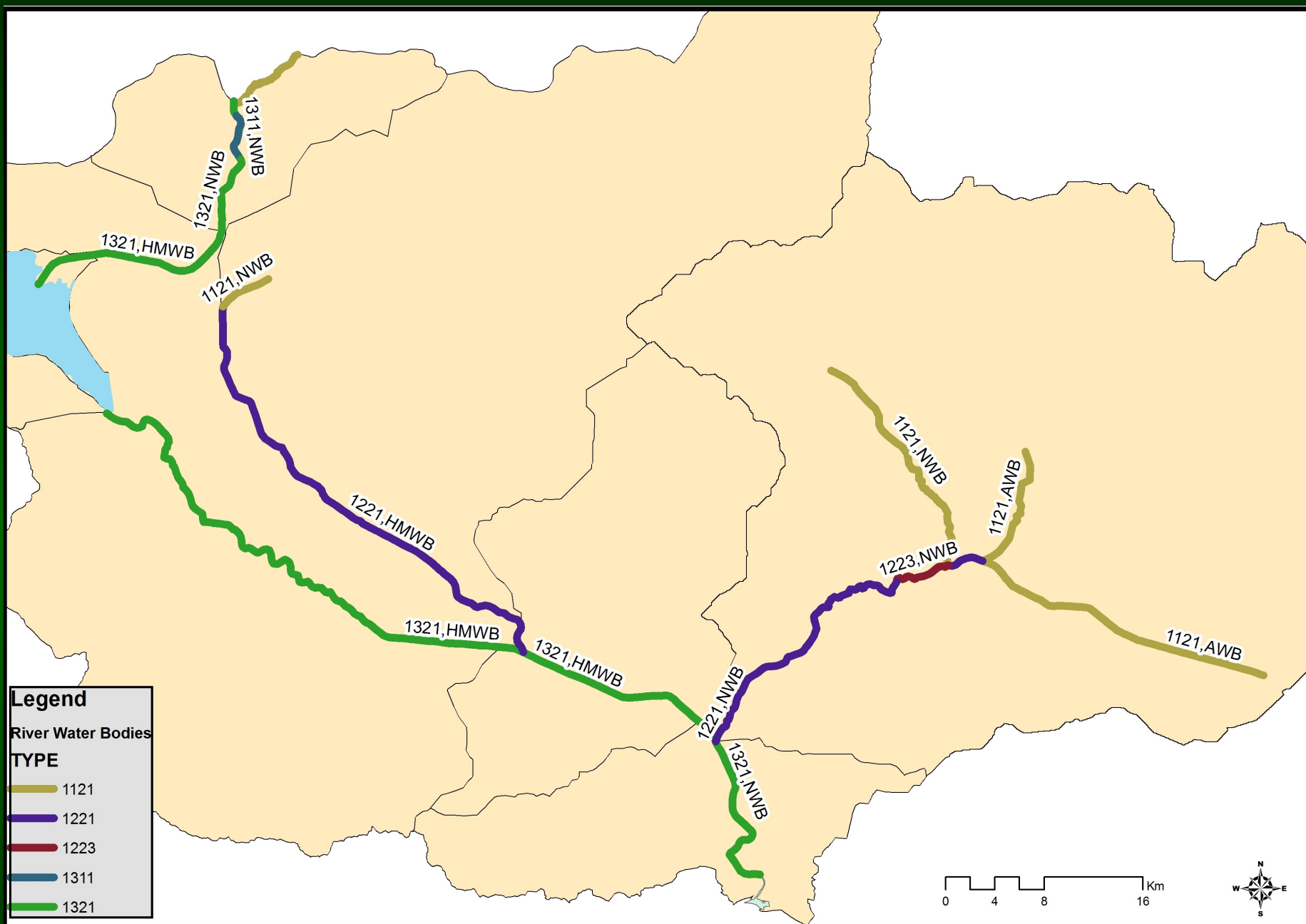MSc. Enviromental Biology, Agroecologist

Typology System

- A four digit numerical system was adapted to present the types
    - 1st digit = altitude category
        - (1=0-150m or 2=150-600m or 3=>600m) *(Dikau, 1989)*
    - 2nd digit = catchment area category
        - (1=0-500m^2 or 2=500-5000m^2 or 3= >5000m^2 (including transboundary river basin) *(Statistical analysis of catchments in Northern Greece)*
    - 3rd digit = geology category
        - (1=Ca or 2=Si or 3=C) *(Data from Geology Dep. AUTH)*
    - 4th digit = slope
        - (1=0-5° or 2=5°-15° or 3= >15°) *(Demek,1972)*
    Example: 1211 = Altitude 0-150m, Catchment 500-5000m^2, Geology Ca, Slope 0-5°

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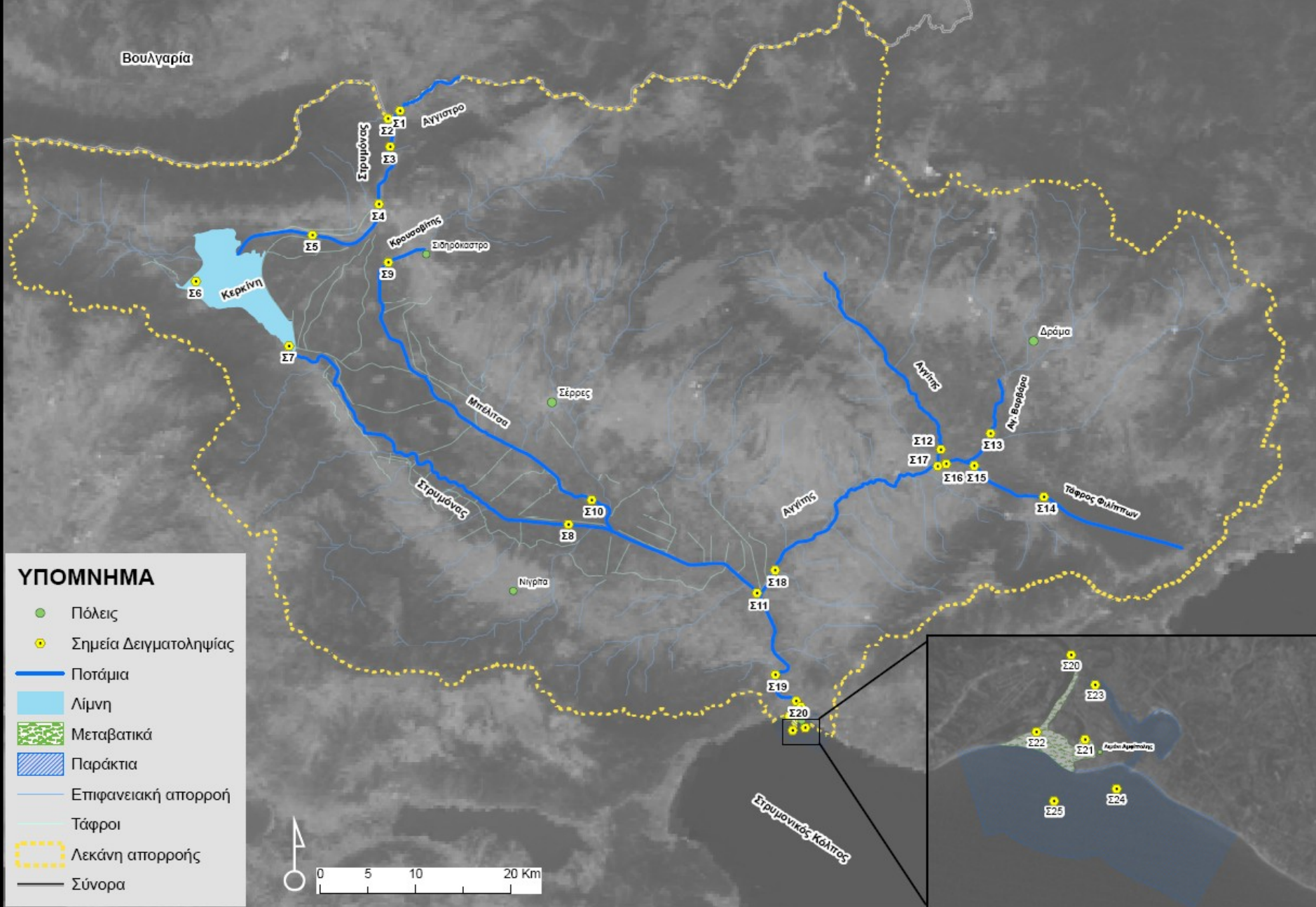MSc. Enviromental Biology, Agroecologist

Results

- 17 river water bodies were identified
  - 3 Artificial WBs (human construction)
  - 5 Heavily modified WBs (severe channel transformations)
  - 9 Natural WBs (mostly upstream parts)
- 5 river types
- No type specific reference conditions

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TYPE	NAME	WATER BODIES	LENGTH (m)
1121	Aggistro	R-NWB	7033
	Aggitis Upstream	R-NWB	20394
	Krousovitis	R-NWB	4383
	Tafros Ag. Varbaras	R-AWB	10850
	Tafros Fillipon 1	R-AWB	19986
	Tafros Fillipon 2	R-AWB	5268
1221	Aggitis 2	R-NWB	23500
	Mpelitsa	R-HMWB	41500
	Tafros Fillipon 3	R-HMWB	3000
1223	Aggitis 1	R-NWB	4905
1311	Strymonas Upstream 2	R-NWB	3979
1321	Strymonas Upstream 1	R-NWB	1241
	Strymonas Upstream 3	R-NWB	6465
	Strymonas Upstream 4	R-HMWB	17590
	Strymonas Downstream 1	R-HMWB	45902
	Strymonas Downstream 2	R-HMWB	17889
	Strymonas Downstream 3	R-NWB	14613

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Legend

River Water Bodies

TYPE
- ▬ 1121
- ▬ 1221
- ▬ 1223
- ▬ 1311
- ▬ 1321

1311,NWB
1321,NWB
1321,HMWB
1121,NWB
1221,HMWB
1321,HMWB
1321,HMWB
1121,NWB
1121,AWB
1223,NWB
1121,AWB
1221,NWB
1321,NWB

Km
0   4   8   16

IV International Symposium on Transboundary Waters Management

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- ▬ Ποτάμια
- ▨ Λίμνη
- ▨ Μεταβατικά
- ▨ Παράκτια
- ▬ Επιφανειακή απορροή
- ▬ Τάφροι
- ┄ Λεκάνη απορροής
- ▬ Σύνορα

Conclusions

- The application of System B proposed 17 monitoring sites for surveillance monitoring for the 17 identified RWBs (One station per WB)

- The selected system B responded to the particularities of the transboundary basin

- Types help us to find out the typocharacteristic conditions which will be compared to the observed in order to define the EQ of each WBs

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Thank you…..

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